ENTOMOLOGY.—*The occurrence of* Phlebotomus *in Panama.*[1]

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The members of the genus *Phlebotomus* form one of the best known groups (*Psychodidae*) of bloodsucking Diptera. Particularly is this true in certain southern European, Asiatic, and African countries where, owing to the fact that certain species are carriers of disease and others are suspected to be, a rather thorough investigation has been made of their habits, distribution, and classification.

The American species have yet to undergo such an intensive investigation, for only twelve have been described, and these mostly from South America. Several species have been suspected of carrying disease, there being considerable evidence to show that *P. verrucarum* Townsend is the vector of verruga fever in Peru, while both *P. brumpti* and *P. intermedius* are suspected of being transmitters of American leishmaniasis.

There are as yet no published records of the occurrence of *Phlebotomus* in Panama. However, in 1911, Mr. August Busck collected two females at Cabima, Panama. These were tentatively determined by Knab as "*P. squamiventris* L. & N." and "*U. rostrans* Summers," respectively.

In 1923, the writer collected a number of specimens, at three localities in Panama. The first were taken in the month of May in the daytime by means of sweeping with a net at the bases of large coipu trees growing in the midst of an uncut forest area located near Cano Saddle, on one of the back arms of Gatun Lake. A number of females and one male were secured in this manner. In June and July, while the writer was investigating the mosquito fauna of Barro Colorado Island, in Gatun Lake, at that time a wholly uninhabited and nearly virgin forest area, he again encountered *Phlebotomus*. The midges were attracted by the camp light (a gasoline lantern) and rested upon objects well within the range of the light. They bit rather frequently, the bite being distinctly sharper than an ordinary mosquito bite. Towards morning they would leave the light and hide themselves

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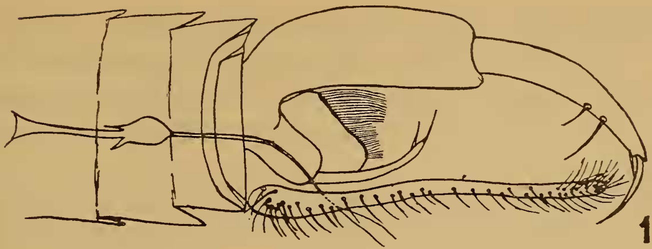
[1] An excellent summary of our knowledge of the species of *Phlébotómus* has been published by F. LARROUSSE, *Etude Systematique et Médicale des Phlébotomes*, 1921, pp. 1–106.

Fig. 1.—Male terminalia of *Phlebotomus panamensis* Snn. Fig. 2.—Male terminalia of *P. vexator* Coq. Fig. 3.—Female terminalia of *P. panamensis* Snn. Fig. 4.—Female terminalia of *P. vexator* Coq. Fig. 5.—Female terminalia of *P. cruciatus* Coq.



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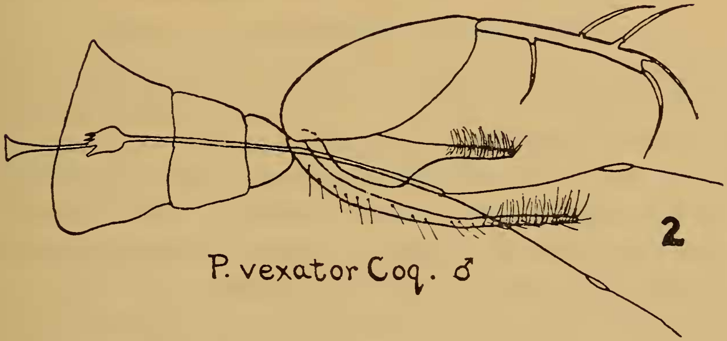
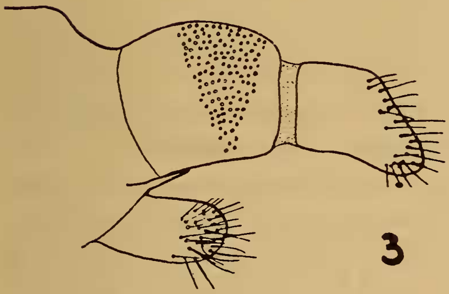
Phlebotomus panamensis Snn. ♂



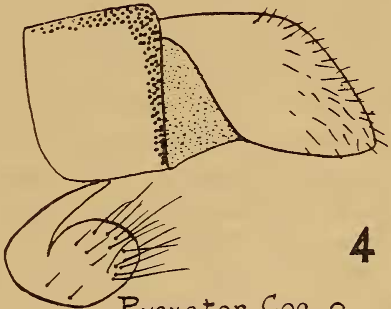
2

P. vexator Coq. ♂



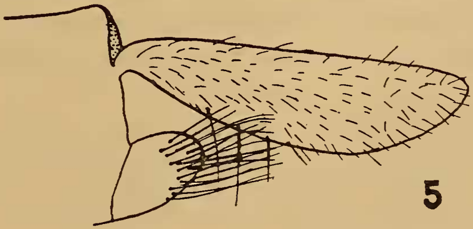
3

P. panamensis Snn. ♀



4

P. vexator Coq. ♀



5

P. cruciatus Coq. ♀

Figs. 1, 2, 3, 4, and 5; see page 190 for description away for the day. Only females were taken. At Porto Bello, Panama, the writer collected a single female in a cave-like dungeon in one of the old Spanish forts in the city. The dungeons were inhabited both by bats and snakes; either, or both probably, serve as hosts for the midges.

It would seem from the above observations that man is not a normal host for these bloodsucking midges; and, in the writer's experience, no ill effects were felt from their bite.

All of the collections of *Phlebotomus* from Panama proved to belong to a single new species, which is here described.

Phlebotomus panamensis, new species

Description of male and female.—Very similar in general appearance to other species of *Phlebotomus.* Integument pale yellow; antennae sixteen-jointed; palpi apparently four-jointed, the basal joint well fused with the second, the relative lengths of the joints (considering the two basal joints as one and the first joint) are 1: 0.90: 0.15: 0.25. All of the body pile long and erect. Subcosta ending free at about the basal third of the wing; distance between tips of R_1 and R_2 greater than distance between tips of R_2 and M_1; petiole of upper forked cell a little more than half the length of R_2; petiole of lower forked cell is to the upper branch of the cell as 3:5.

Male clasper: Four spines present, arranged in a double group; the terminal spine the longest. Other genitalic characters are shown in the figure. Apparently eight abdominal segments are present, the seventh and eighth appear to be telescoped into the sixth.

Female terminalia: The cerci, or terminal lobes, and the ventral lobes of three species before me, *P. panamensis*, *P. cruciatus*, and *P. vexator* show certain differences which may aid in distinguishing these species in this sex. (See figures 3, 4, and 5.) *P. cruciatus* has much larger terminal lobes than have the other two species, and they are more than twice as long as broad and more finely setulose; in *P. panamensis* the terminal lobes are subquadrate, except that the lower distal corner is obtusely produced; in *P. vexator* the terminal lobes are similar to those of *P. panamensis*, except that they are somewhat larger.

The key to the American species, based on male genitalia, given by Larrouse, shows that *P. longipalpis* Lutz & Neiva (Brazil) may be the nearest ally, among the known species, to *P. panamensis.* The terminal palpal joint in that species is longer than any of the preceding joints, whereas in *P. panamensis*, the last joint is much shorter than the antepenultimate joint.

Type locality.—Cano Saddle, Canal Zone, Panama.

Type.—Cat. no. 28726, U. S. N. M.

Male type, female allotype, Cano Saddle, Canal Zone; eight female paratypes, Cano Saddle, Barro Colorado Island, Canal Zone, Porto Bello, May–August, 1923, collected by R. C. Shannon; Cabima, Panama, May 22, 1911, collected by A. Busck.

ANTHROPOLOGY.—*The subjective element in magic.* JOHN R. SWANTON, Smithsonian Institution.[1]

The theory that religion originated in animism, belief in souls resident in or associated with plants, animals, natural and artificial objects, was, as is well known, propounded by E. B. Tylor more than fifty years ago; and, as is also well known, J. G. Frazer later set up an opposing theory to the effect that animistic beliefs were secondary, having sprung from an earlier stage in which men's minds were dominated by magic. Frazer's hypothesis has been repeatedly and thoroughly grilled by leading British and American anthropologists such as Lang, Marett, Goldenweiser, and Lowie, all of whom take issue with the learned author, and in general it may be said that there is no tangible proof for the evolutionary succession for which Frazer contended. However, his critics have not found it altogether easy to place magic and religion in their proper mutual relations.

Magical practices seem to be accomplished in three ways, (1) through spirit intermediaries whose coöperation can not be counted upon with certainty, (2) through spirit intermediaries who are absolutely governed by the magician—or perhaps rather by the magical incantation, or (3) without spirit intermediaries. The first of these is generally conceded to belong in very large measure in the province of religion, while the second is usually classed as magical. But since the theoretical control over spirits exercised by a worker in magic varies greatly it is difficult to draw a sharp line between practices belonging to these two classes. The conception of spirit helpers is certainly furnished by religion, and where their services are absolutely constrained we may perhaps say that we have a magic-religion complex with magic dominant.

Practices of the third type are, of course, those most typical of magic as distinguished from religion, but when we come to concrete

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[1] Received February 19, 1926.